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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,149	03/28/2001	Katsuhisa Yuda	NEC WNZ-2310	3988

7590 08/14/2002

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EXAMINER

CROWELL, ANNA M

ART UNIT PAPER NUMBER

1763

5

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/820,149

Applicant(s)

YUDA ET AL.

Examiner

Michelle Crowell

Art Unit

1763

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.

4a) Of the above claim(s) 3,6,9,12,15,18,21,24,27,30,33,36,39,42, 45, and 47-50 is/are withdrawn from consideration.

- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-50 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____

U.S. Patent and Trademark Office
PTO-326 (Rev. 04-01)

Office Action Summary

Part of Paper No. 5

Continuation of Disposition of Claims: Claims rejected are

1,2,4,5,7,8,10,11,13,14,16,17,19,20,22,23,25,26,28,29,31,32,34,35,37,38,40,41,43,44 and 46.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-48, drawn to an apparatus, classified in class 118, subclass 723ER.
 - II. Claims 49-50, drawn to a method, classified in class 427, subclass 457.
2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus does not require introducing oxygen and silicon gases.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I	- Figure 1
Species II	- Figure 4
Species III	- Figure 5
Species IV	- Figure 6

Art Unit: 1763

Species V - Figure 13**Species VI - Figure 14****Species VII - Figure 15****Species VIII - Figure 16**

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Art Unit: 1763

5. During a telephone conversation with Mr. Nick Soloway on August 01, 2002 a provisional election was made with traverse to prosecute the invention of Species IV, Figure 6, claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22, 23, 25, 26, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41, 43, 44, and 46. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, and 47-50 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22, 23, 25, 26, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41, 43, 44, and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "aperture ratio" is unclear. How is the aperture ratio defined or measured?

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 4, 11, 13, 14, 16, 23, 25, 26, 28, 35, 37, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Yuda (Japanese Patent Publication 11-168094).

Referring to Drawings 8-10 and paragraphs [0040]-[0043], Yuda discloses a remote plasma chemical vapor deposition apparatus comprising a chamber wall 16 (body), oxygen gas inlet 5 (first inlet), monosilane and inert gas inlets 9, 24 (second inlet), oxygen plasma region 6 (plasma generation region), silicon oxide precursor region 10 (processing region), RF impression electrode 1 (energy source), middle mesh plate electrode 26 (plate, closure electrode, gas supplier plenum), and a counter electrode 2 (substrate supporter). Oxygen gas is supplied to the RF impression electrode and is excited to create oxygen plasma. Monosilane gas and inert gas are supplied to the processing chamber via the middle mesh plate electrode.

The middle mesh plate electrode 26 divides the chamber 16 into a plasma generation region and processing region. The middle mesh plate electrode further includes several holes 27, 28, 30 (plurality of perforated holes). The oxygen radical holes 27 have a plurality of upper and lower holes which are connected by tube walls. The oxygen radical holes 27 allow oxygen plasma to pass through the middle mesh plate electrode. Monosilane gas and inert gas flow through the monosilane gas nozzle 27 and

Art Unit: 1763

inert gas nozzle 28 (gas injection holes) located in the bottom of the middle mesh plate electrode.

Regarding Claims 11, 14, 23, and 26

The middle mesh plate electrode 26 acts as both a plate and a closure electrode. The middle mesh plate electrode 26 is electrically grounded so that plasma may flow through the openings.

Regarding Claims 35 and 38

As seen in Figure 8, the distance between the holes is smaller than the distance between the middle mesh plate electrode 26 and the counter electrode 2.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5, 7, 8, 10, 17, 19, 20, 22, 29, 31, 32, 34, 41, 43, 44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuda (Japanese Patent Publication 11-168094) in view of Sameshima et al. (U.S. 5,304,250).

Yuda fails to teach the diameter of each hole inside the plate.

Referring to Figure 2 and column 4, lines 15-21, Sameshima teaches a remote plasma chemical vapor deposition apparatus which uses a disk shaped mesh plate 1 (plate, closure electrode) to divide the chamber into a plasma generation chamber 22 and a substrate treatment chamber 21. The disk shaped mesh plate 1 has a plurality of holes 4 and each hole has a diameter of approximately 3 mm. The hole size and number of holes

Art Unit: 1763

allows plasma to form either a uniform film or etch a large substrate area. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the plate of Yuda with a hole diameter of approximately 3 mm as taught by Sameshima. This would allow plasma to form either a uniform film or etch a large substrate area.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

AMC *ame*
August 9, 2002

[Signature]
GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700